

ABSTRACT

A fuel cell-atmospheric-pressure turbine hybrid system uses the thermal energy of a cell exhaust gas discharged from an atmospheric-pressure, high-temperature fuel cell effectively, 5 does not need any additional emergency protective device, and enables the use of lightweight, easy-to-process structural and piping materials to reduces the cost.

The fuel cell-atmospheric-pressure turbine hybrid system includes: a combustor 2 for burning an exhaust gas G1 10 discharged from an atmospheric-pressure, high-temperature fuel cell 1; a turbine 3 in which a combustion gas G2 discharged from the combustor 2 expands and the pressure of the combustion gas G2 drops to a negative pressure; a compressor 4 for compressing an exhaust gas G3 discharged from the 15 turbine 3 to increase the pressure of the exhaust gas G3; and a heat exchanger 5 for transferring heat from the high-temperature exhaust gas G3 discharged from the turbine 3 to low-temperature air A to be supplied to the fuel cell 1.